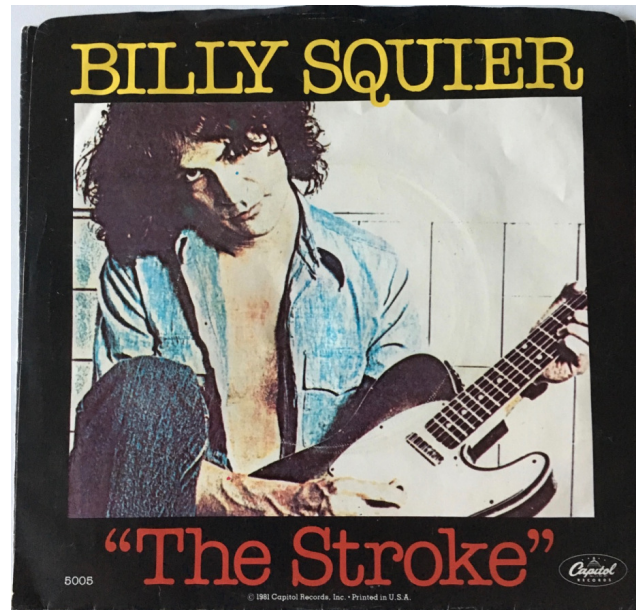


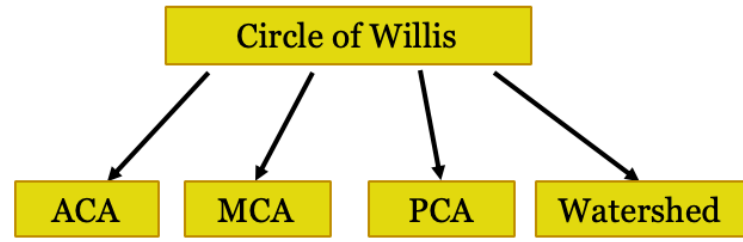
Stroke Localization (Part 2)

for USMLE Step One



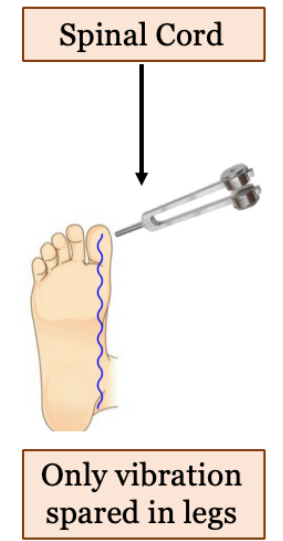
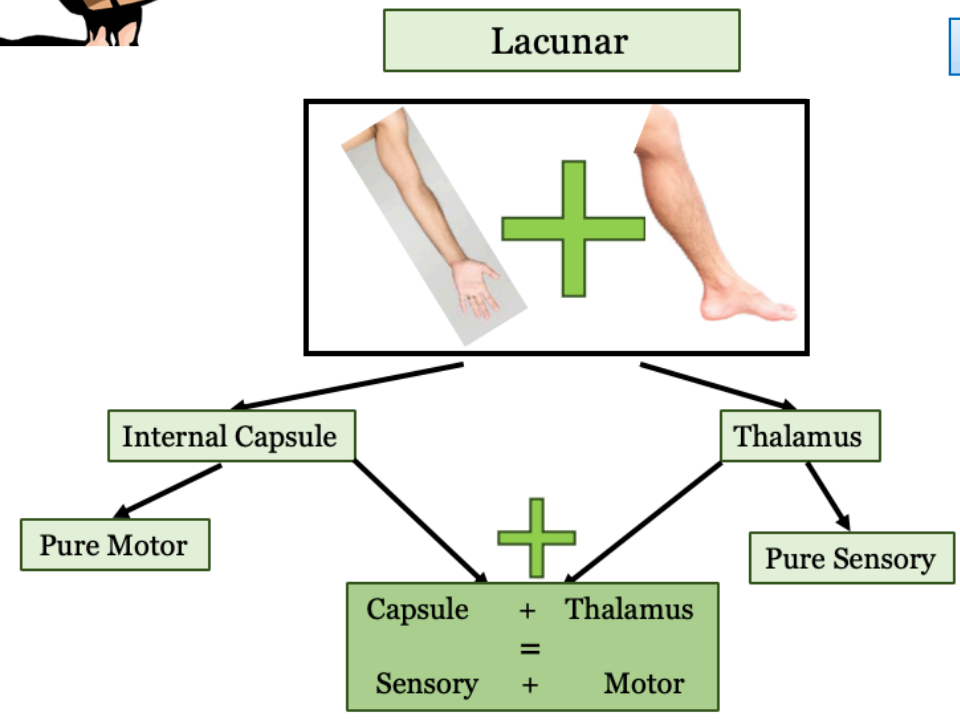
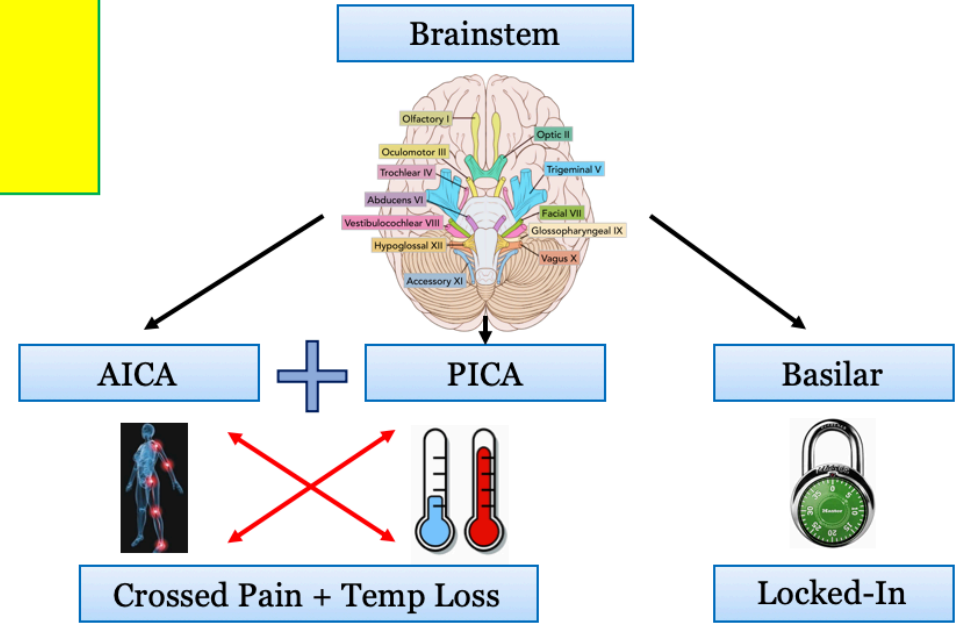
Benjamin Tanenbaum
UMass Class of 2021

www.12daysinmarch.com
email: Howard@12daysinmarch.com



Roadmap

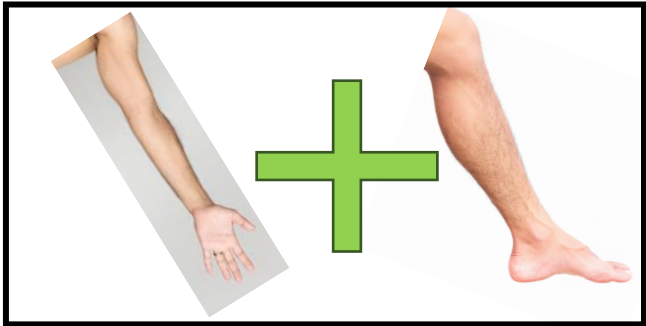
(Strokes for the Boards)



Roadmap

(Strokes for the Boards)

Lacunar



Subthalamic Nucleus (STN)

Internal Capsule

Thalamus

Pure Motor

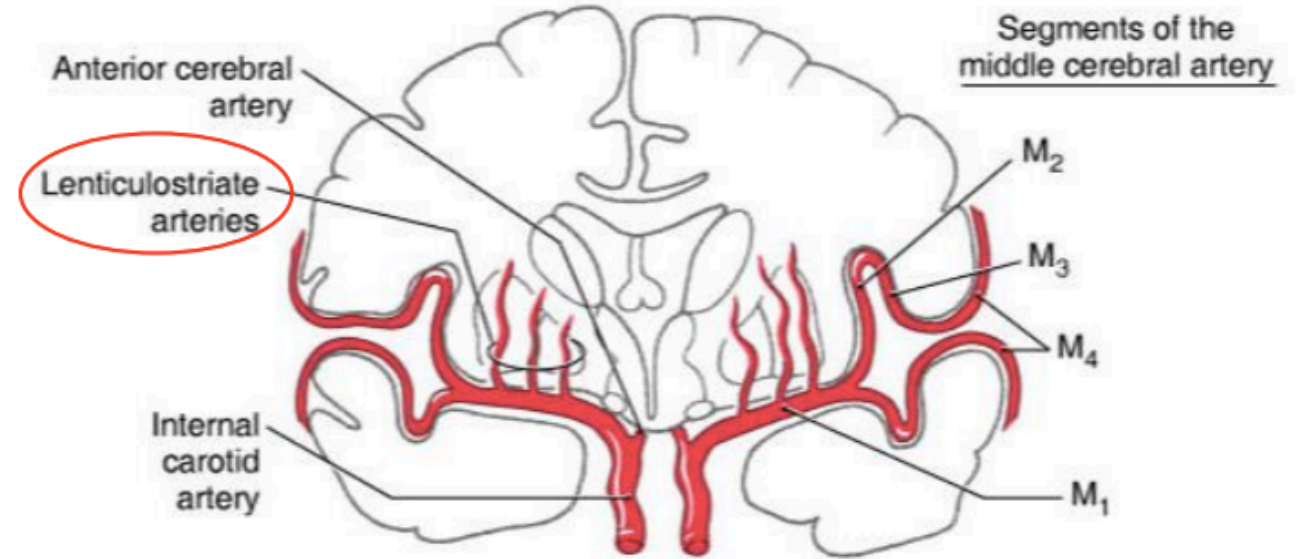
Pure Sensory

Capsule + Thalamus
= Sensory + Motor



Hemiballismus

Lacunar Strokes=Small Arteries



Internal Capsule Lacunar Stroke

Internal Capsule

Blood Supply

- Lenticulostriate arteries (*MCA deep branches*)

Location

- Contralateral **Face, Arm, AND Leg**

Syndrome

- Loss of **Motor Function**

Internal Capsule

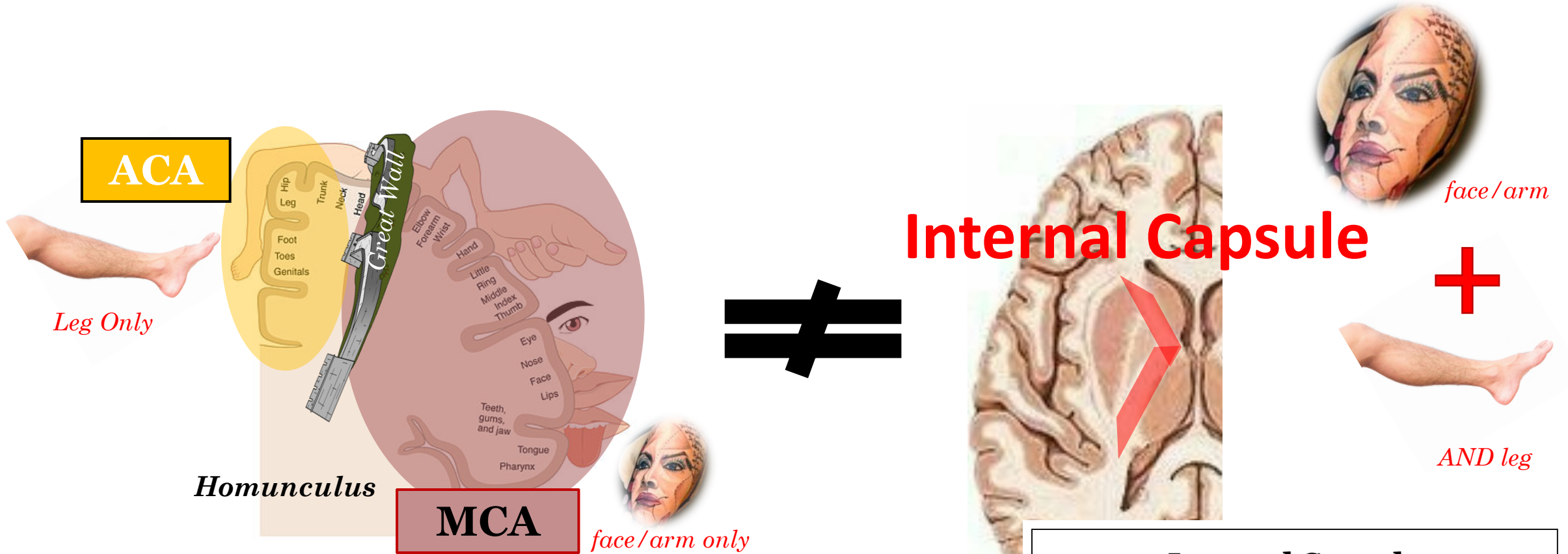


face/arm



AND leg

Internal Capsule Lacunar Stroke



Internal Capsule

Location

- Contralateral **Face, Arm, AND Leg** → **Motor** control

Blood Supply

- Lenticulostriate arteries (**MCA deep branches**)

Internal Capsule Lacunar Stroke

**Greatest Risk Factor:
Chronic Hypertension**



Internal Capsule

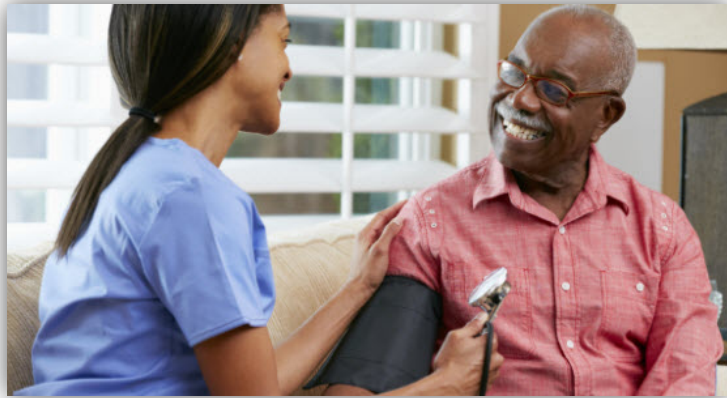


face/arm



AND leg

Internal Capsule Lacunar Stroke



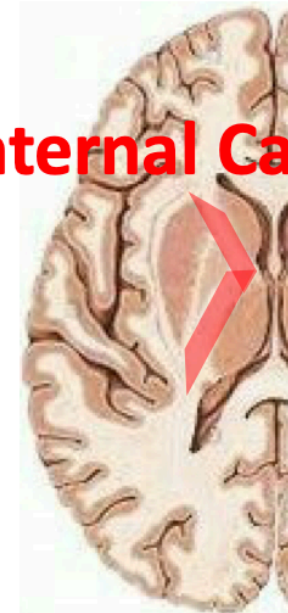
*A longstanding **hypertensive** presents with the acute onset of **facial, arm and leg paralysis/numbness** accompanied by **slurred speech**.*

1. Select the most likely vessel...***lenticulostriate***
2. Select the contributing risk factor...**HTN**

Patient presents with lacunar infarction of the internal capsule.

3. What symptoms would be most characteristic?

Internal Capsule



face/arm



AND leg

Somatosensory Thalamus Lacunar Stroke

Somatosensory Thalamus

Blood Supply

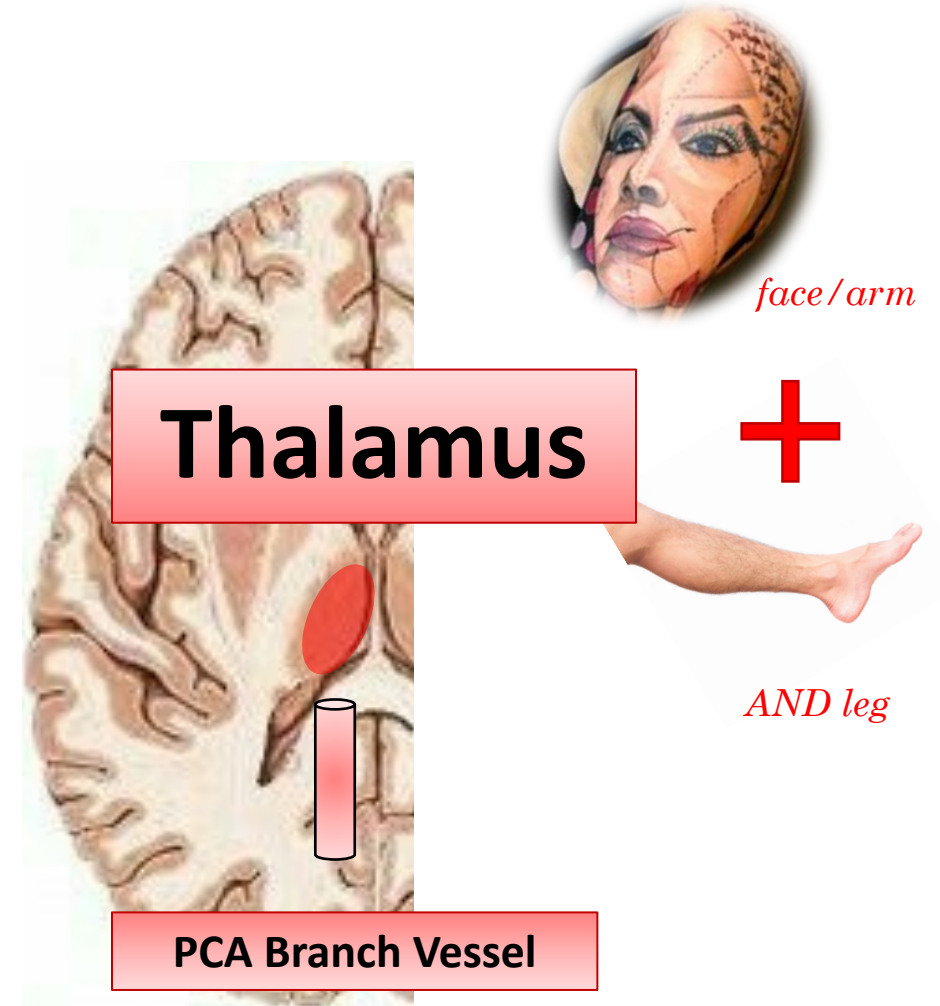
- PCA deep branches

Location

- Contralateral **Face, Arm, AND Leg** somatic sensation (pain/temp AND vibration)

Syndrome

- **Post-Thalamic Pain Syndrome (Allodynia)**



Somatosensory Thalamus Lacunar Stroke

Somatosensory Thalamus

Blood Supply

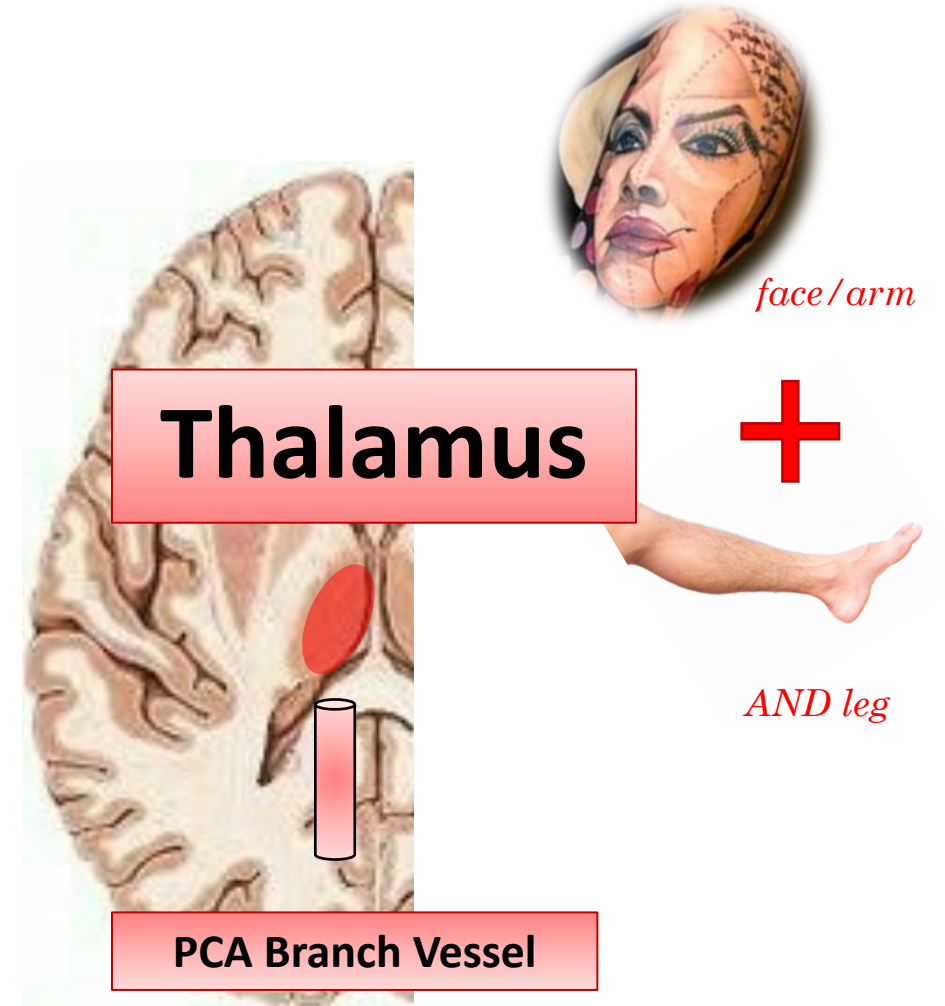
- **PCA** deep branches

Location

- Contralateral **Face, Arm, AND Leg** somatic sensation (pain/temp **AND** vibration)

Syndrome

- **Post-Thalamic Pain Syndrome (Allodynia)**



Somatosensory Thalamus Lacunar Stroke

Somatosensory Thalamus

Blood Supply

- **PCA** deep branches

Location

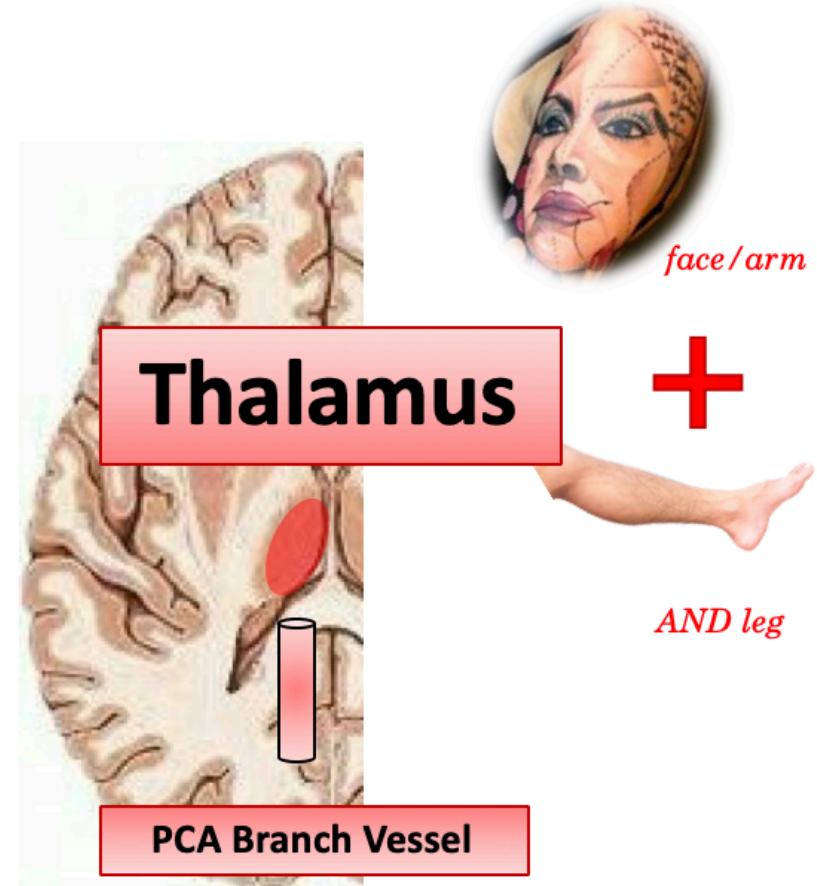
- Contralateral **Face, Arm, AND Leg** somatic sensation (pain/temp AND vibration)

Syndrome

- **Post-Thalamic Pain Syndrome (Allodynia)**

Allodynia

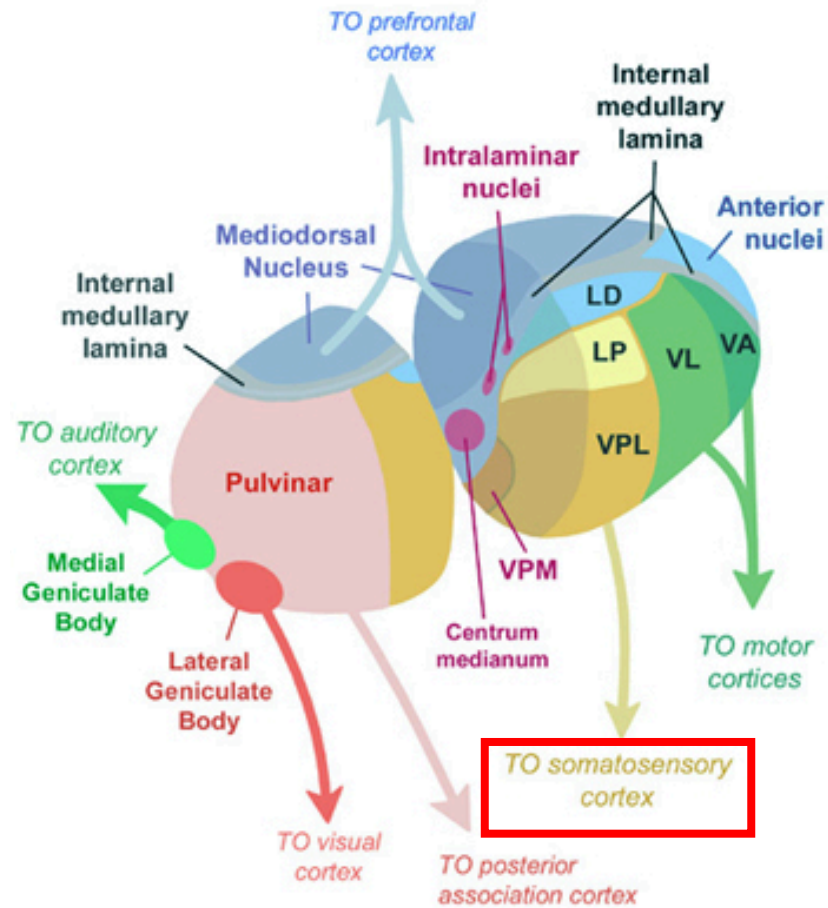
Delayed-onset unilateral pain post-stroke



Sensory Syndrome

Super-Quick Thalamus Review

Thalamus=Sensory Relay Station



Microaneurysm Rupture

- Complete contralateral hemiparesis
- Complete contralateral hemi-sensory loss (same side)
- **No cortical/brainstem signs** (aphasia, cranial nerve deficits)

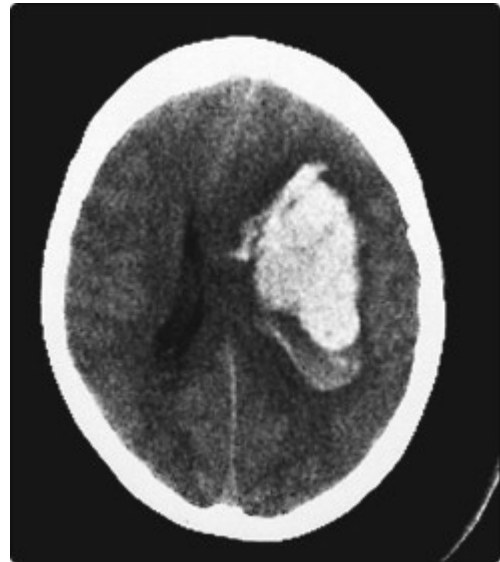
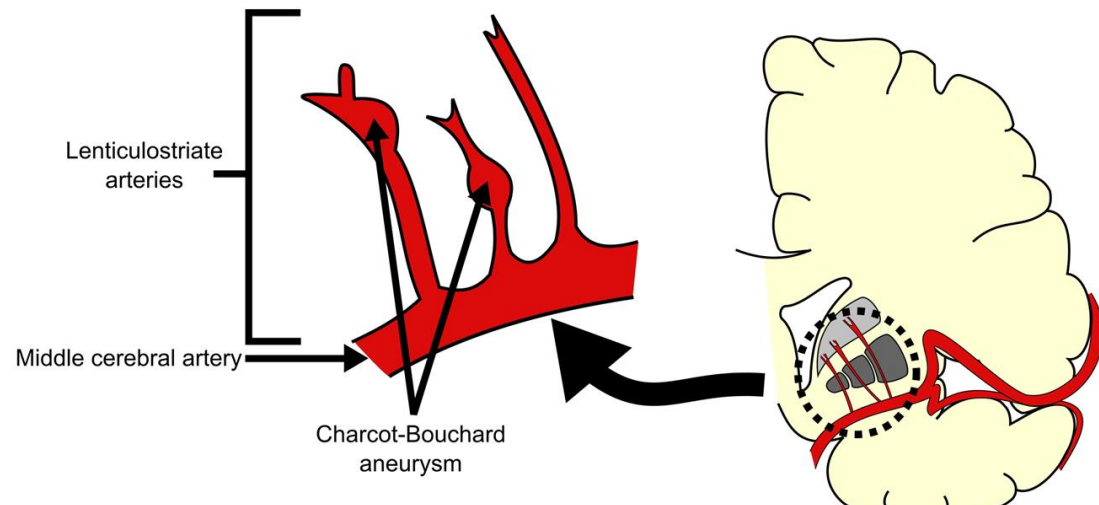


Thalamus+Internal Capsule

Microaneurysm Rupture

Charcot-Bouchard Aneurysm

Charcot-Bouchard Aneurysm rupture



**Thalamus
+
Internal
Capsule**

- Complete contralateral hemiparesis
- Complete contralateral hemi-sensory loss (same side)
- **No cortical/brainstem signs** (aphasia, cranial nerve deficits)

Subthalamic Nucleus Stroke

- Contralateral hemiballismus
- Hemiballismus= one-sided flinging motions



Roadmap

(Strokes for the Boards)



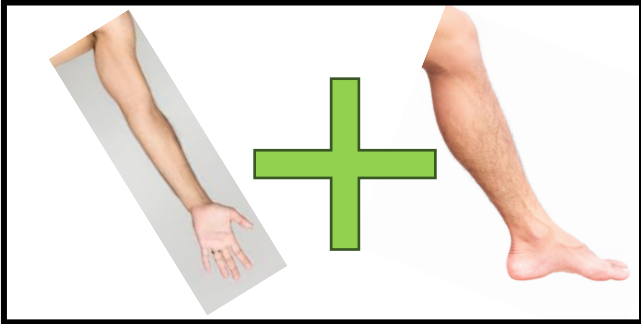
Lacunar

Internal Capsule
Location

- Contralateral **Face, Arm, AND Leg** → **Motor** control

Blood Supply

- Lenticulostriate arteries (**MCA deep branches**)



Somatosensory Thalamus
Blood Supply

- **PCA** deep branches

Location

- Contralateral **Face, Arm, AND Leg** somatic sensation (pain/temp **AND** vibration)

Syndrome

- **Post-Thalamic Pain Syndrome (Allodynia)**

Internal Capsule

Thalamus

Pure Motor

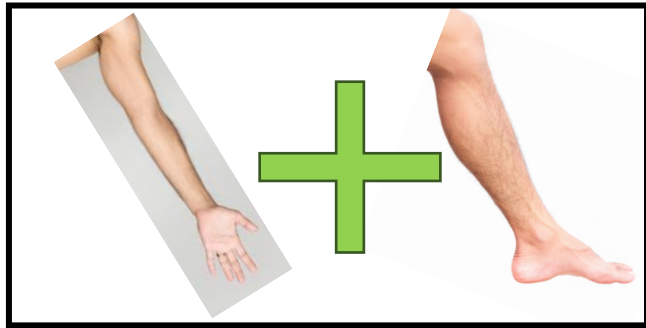
Pure Sensory

$$\begin{array}{ccc} \text{Capsule} & + & \text{Thalamus} \\ & = & \\ \text{Sensory} & + & \text{Motor} \end{array}$$

Roadmap

(Strokes for the Boards)

Lacunar



Subthalamic Nucleus (STN)

Internal Capsule

Thalamus

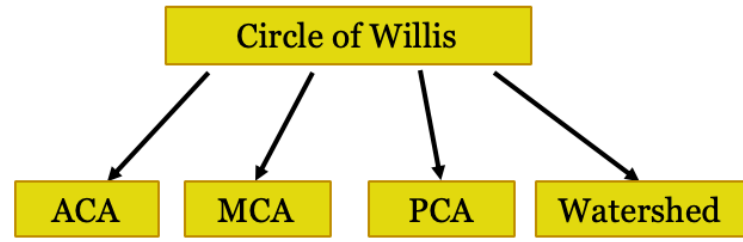
Pure Motor

Pure Sensory

Capsule + Thalamus
= Sensory + Motor

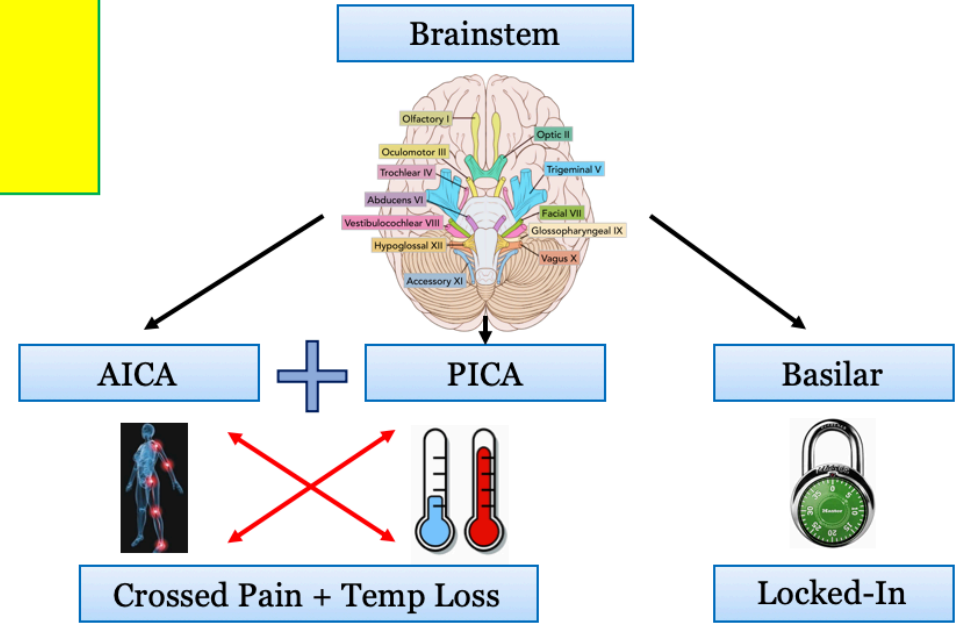


Hemiballismus

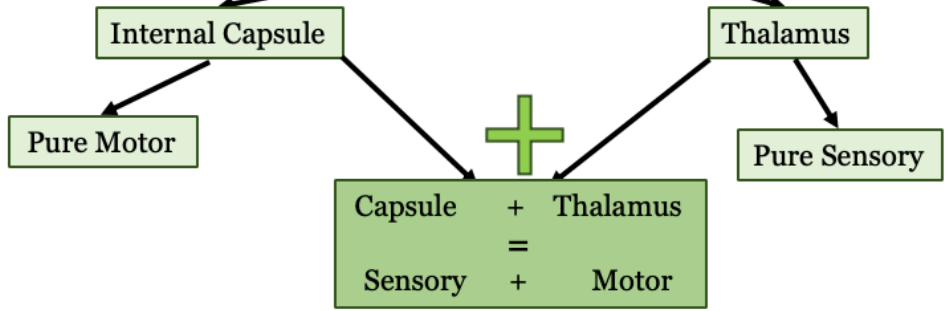
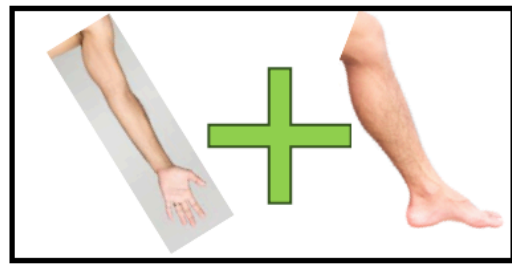


Roadmap

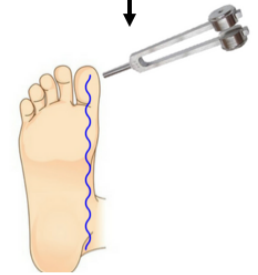
(Strokes for the Boards)



Lacunar



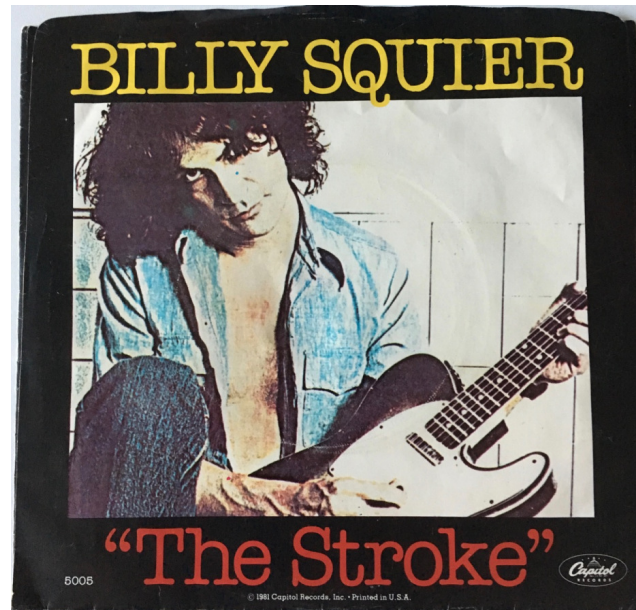
Spinal Cord



Only vibration spared in legs

Stroke Localization (Part 2)

for USMLE Step One



Benjamin Tanenbaum
UMass Class of 2021

www.12daysinmarch.com
email: Howard@12daysinmarch.com